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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|------------------------------|------------------|
| 10/695,748 | 10/30/2003 | Bruce B. Doris | FIS920030264 (00750483AA) | 6189 |
| 30743 | 7590 | 04/10/2006 | EXAMINER | |
| WHITHAM, CURTIS & CHRISTOFFERSON, P.C. 11491 SUNSET HILLS ROAD SUITE 340 RESTON, VA 20190 | | | LE, THAO X | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2814 | |

DATE MAILED: 04/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

A 81

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/695,748 | Applicant(s) DORIS ET AL. | |
| | Examiner Thao X. Le | Art Unit 2814 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-12, 16-19 is/are rejected.
- 7) ☒ Claim(s) 13-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>3/24/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 24 Feb. 2006 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11-13, 15-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 11; recited the limitation "the first and second film ...exhibit either tensile or compressive properties" is indefinite because as defined in claim 10 the first film providing tensile stress and the second providing compressive stress. Assuming the limitation would read as 'the first film is tensile stress and second film is compressive stress'.

b. Claims 12-13 and 15-19: recited the limitation "the first and second stressed films" is indefinite because it is lacking the tensile or compressive stress. Assuming the limitation would read as 'the first tensile stress and second compressive stress'.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 10-12 and 16-19 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pub2003/0181005 to Hachimine et al.

Regarding claim 10, Hachimine discloses a structure that adjusts carrier mobility in CMOS transistors in fig. 24 or 31 comprising: a substrate 1 [0164], a first transistor (n-ch MISFET) having a gate dielectric 5, gate electrode 6, and source/drain 7/10 [0165], and gate region 12 [0167], formed on said substrate 1, a second transistor (p-ch MISFET) having a gate dielectric 5, gate electrode 6, and source/drain 8/11, and gate regions 12, fig. 15, formed on said substrate 1, a first film 14a providing tensile stress [0168] at least at the channel of first transistor, a second film 14b providing compressive stress [0168] at least at the channel of second transistor, a portion of said second film

14b extending in the same region of said substrate as a portion of said first film 14a, fig. 24 or 31, and a shear force isolation layer 15 [0170] separating said first film 14a and said second film 14b and said tensile and compressive stress therein in at least one area, fig. 15.

With respect to 'shear force isolation layer', Hachimine discloses layer 15 is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent. Or where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 195 USPQ 430, 433 (CCPA 1977) and MPEP 2112.01.

Regarding claim 11, Hachimine discloses the structure as recited in claim 10 wherein the first tensile stress and second compressive stress films can be composed of nitride, oxide [0168].

Regarding claim 12, Hachimine discloses the structure as recited in claim 11 wherein the first tensile and second compressive stressed films 14a/14b are separated by said shear force isolation layer 15 at all points of overlap, fig. 24 or 31.

Regarding claim 16, Hachimine discloses the structure as recited in claim 11 wherein the first tensile and second compressive stressed films 14a/14b are separated by the shear force isolation layer 5 at selected areas.

Regarding claim 17, Hachimine discloses the structure as recited in claim 16 wherein the first tensile stressed film 14a, closer to the substrate than the second compressive stressed film 14b, fully surrounds the NMOS transistor, fig. 31.

Regarding claim 18, Hachimine discloses th structure as recited in claim 17 wherein said first tensile stressed film 14a is the only separation between the nMOS transistor and said second compressive stressed film 14b, fig. 31.

Regarding claim 19, Hachimine discloses the structure as recited in claim 17 wherein said second compressive stressed film 14b surrounds the oxide liner 15 at the sides of the PMOS transistor gate electrode 6 with the top of the gate directly engaged with said second compressive stressed film 14b, fig. 31.

Response to Arguments

6. Applicant's arguments filed 13 Jan. 2006 have been fully considered but they are not persuasive. The Applicant argues that Hachimine fails to disclose the layer 15 is a shear force isolation. This is not persuasive because Hachimine discloses layer 15 is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent. Or where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 195 USPQ 430, 433 (CCPA 1977) and MPEP 2112.01.

Allowable Subject Matter

7. Claims 13-15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art of record neither anticipated nor rendered obvious all the limitations of claim 13 including 'the first stressed film, closer to the substrate than the second stressed film, does not fully surround the nMOS transistor, but rather the sides only, while the remaining surfaces of the nMOS transistor are contacted by said shear force isolation layer'.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X. Le whose telephone number is (571) 272-1708. The examiner can normally be reached on M-F from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on (571) 272 -1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

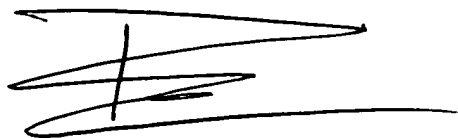
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, consisting of several fluid, overlapping strokes that form a stylized representation of the name Thao X. Le.

Thao X. Le
31 Mar. 2006